their social structure and magical and religious beliefs they are the most primitive people who have yet been systematically studied. The Australians, so often spoken of as very primitive people, have well-developed totemic and local organisations, a classificatory system of kinship names, and elaborate systems of myths and magical beliefs. The Andamanese have no system of clans, but live in small hordes having little cohesion. Their system of kinship terms appears to be antecedent to the classificatory system. Their myths and magical beliefs are equally simple and undeveloped.

The Little Andamans are still left for future investigation, although Mr. Brown spent three and a half months with these wild islanders. As, however, there was no interpreter, the amount of progress which he made in learning their language was insufficient to enable him to pursue the investigation of their sociology and religion, but he has recorded their material culture. A. C. Haddon.

## NOTES.

The third annual general meeting of the British Science Guild will be held at the Mansion House to-morrow, January 22, at 4 p.m., under the presidency of the Lord Mayor. Mr. Haldane, president of the Guild, will address the meeting, and will be supported by Sir W. Ramsay, K.C.B., F.R.S., Sir F. Pollock, Bart., Sir Aston Webb, R.A., Sir Oliver Lodge, F.R.S., Sir Boverton Redwood, Dr. Bovey, and other speakers.

We see with deep regret the announcement that Dr. Francis Elgar, F.R.S., whose scientific and practical work in naval architecture is of world-wide renown, died suddenly on January 17 at sixty-three years of age.

The British Association will meet in Winnipeg from August 25 to September 1 of this year. The president-elect is Sir J. J. Thomson, F.R.S.; and the following sectional presidents have just accepted office:—A (Mathematical and Physical Science), Prof. E. Rutherford, F.R.S.; B (Chemistry), Prof. H. E. Armstrong, F.R.S.; C (Geology), Dr. A. Smith Woodward, F.R.S.; D (Zoology), Dr. A. E. Shipley, F.R.S.; E (Geography), Sir Duncan A. Johnston, K.C.M.G.; F (Economic Science and Statistics), Prof. S. J. Chapman; G (Engineering), Sir William H. White, K.C.B., F.R.S.; H (Anthropology), Prof. J. L. Myres; I (Physiology), Prof. E. H. Starling, F.R.S.; K (Botany), Lieut.-Colonel D. Prain, F.R.S.; L (Educational Science), Dr. H. B. Gray; and subsection, Agriculture, Major P. G. Craigie (chairman). A handbook of preliminary information, drawn up by the local executive committee, may be obtained from the office of the British Association, Burlington House, London, W., or will be sent to applicants enclosing 2½*d.* for postage.

A sum of 20,000*l.* has been placed in the hands of the trustees of the medical school of the London Hospital to be invested to the best advantage, and the income from it to be expended in the advancement of medical research and the promotion of higher education in medicine. The administrators are the chairman, Mr. Sydney Holland, and two members of the acting staff of the hospital. It has been settled that the money is to be spent on increasing the facilities for research, and not for the routine teaching of candidates for examination. The benefits derived from the gift will not be confined to those students educated at the London Hospital, but will be open to qualified medical men from any part of the British Empire who are willing to give up their time to advancing medical knowledge within the walls of the London Hospital or college. The donor of this munificent gift desires to remain anonymous, in the hope that the fund which he has thus started will be added to by others, and that in time it may become of such magnitude as to be of great use to the present and to all future generations in the fight against and the prevention of, disease.

An interesting summary by Dr. H. R. Mill of the rainfall of the British Isles in 1908 appeared in the *Times* of January 16. The discussion is only a preliminary one, containing results of observations at ninety representative stations, and comparisons with the average of the last thirty years. A complete discussion of the data will appear later in "British Rainfall," but the author remarks, "the laborious re-computation from all the *data* ultimately available rarely shows the preliminary estimates to be much in error, though, of course, greater detail becomes possible." The production of the present summary in so short a time reflects great credit on the promptitude of the voluntary observers and on the staff of the British Rainfall Organisation. The figures show that the year was technically dry; the following are the percentages of the average for the general rainfall:—England, S., 86; Wales, 95; England, N., 91; Scoland, 98; Ireland, 101; British Isles, 93. The monthly values are, of course, much more variable than the annual; the author summarises them as follows:—"The collective rainfall of the country was above the average from March to the end of September. The dry October brought it back to the average, the dry November greatly reduced it, but a really wet December would have made it up in the end; and even with the moderately dry December the final deficiency, as has been shown, was not very great." June was very dry in England, but less so in other parts. The rainfall for London (Camden Square) was 23·67 inches, an inch and a half below the thirty years' average; but, the author remarks, London is a large place; the general average of the district ranges from about 23 inches in the low-lying parts near the river to at least 27 inches on the encircling girdle of hills.

M. Antony Poincaré has been elected president, and MM. Eiffel and Maillet vice-presidents, of the French Meteorological Society.

Dr. Sven Hedin arrived at Stockholm on January 17, and had an audience of the King of Sweden, who presented him with the Grand Cross of the Polar Star. He will give an account of his recent expedition in Tibet at a special meeting of the Royal Geographical Society to be held in the Queen's Hall on February 8.

It is announced in the *Chemist and Druggist* that Baron Bessières has left a legacy of 3200*l.* to the Pasteur Institute, Paris, to be employed in scientific researches in accordance with special instructions he has left with his executor.

The seventieth birthday of Prof. G. Lunge will be celebrated on September 15, and a local committee has undertaken to arrange a suitable commemoration of the occasion. Chemists who desire to be associated with this festival should communicate with Dr. E. Berl, Zürich IV, Sonneggstrasse 84.

The council of the Institution of Civil Engineers, after consideration of the papers on Indian engineering subjects published in the Proceedings for the past session, has awarded the "Indian premium" of the institution for 1908, of the value of 33*l.*, to Mr. F. P. Anderson, for his paper on river control by wire net-work.

Prof. E. A. Minchin has left England for three months, accompanied by his assistant, Dr. Woodcock, on a visit to the zoological station at Rovigno, in order to carry on researches on the development of the trypanosome of the little owl (*Athene noctua*). All communications should be addressed to him at the Zoologische Station, Rovigno (Istria), Austria.

The Geological Society of London will this year award its medals and funds as follows:—Wollaston medal, Mr. Horace B. Woodward, F.R.S.; Murchison medal, Prof. Grenville A. J. Cole; Lyell medal, Prof. Percy F. Kendall; Bigsby medal, Dr. John Smith Flett; Prestwich medal, Lady Evans; Wollaston fund, Mr. Arthur J. C. Molyneux; Murchison fund, Mr. James V. Elsden; Lyell fund, Mr. R. G. Carruthers and Mr. Herbert Brantwood Muff.

During the past few days the following earthquake shocks have been reported:—*January* 13, *Rome.*—Earthquake shocks at 1.45 a.m. reported over northern Italy. Two distinct shocks with a few seconds' interval. *Vienna.*—Slight earthquake shocks at many points in the southern part of Austria, extending from Serajevo to Trieste. *January* 15, *Cape Town.*—Several shocks of earthquake have been felt recently in various parts of South Africa. One was felt at Johannesburg on this date.

Prof. Ricco, director of the Catania Observatory, who has just returned from Calabria, has stated to a correspondent of the *Times* that the quay and the houses at Reggio which stood near the landing quay of the ferry-boat have sunk considerably as a result of the recent earthquake; the point of the new jetty was actually under water. The sea wave, he says, reached a height of 11 feet at Villa San Giovanni, 13 feet at Pellaro, and rather more at Lazzaro; at Catania it was nearly 7 feet high, and at Messina 6½ feet, though it did more damage at Messina than elsewhere.

The death is reported of Prof. G. W. Hough, professor of astronomy at the North-Western University, Evanston, Illinois. Prof. Hough was born in New York State in 1836. After holding a subordinate post at the Cincinnati Observatory, he was appointed in 1860 director of the Dudley Observatory, Albany. In 1879 he became director of the Dearborn Observatory, Chicago, and professor of astronomy at Chicago University. He was appointed to his chair at Evanston in 1887. He published many reports embodying his discoveries, which were particularly concerned with double stars and with the planet Jupiter, and invented several instruments for use in astronomical and meteorological investigations.

The late Prof. Tait contributed to Nature between the years 1887 and 1893 a valuable series of papers on the physics of golf. It is interesting to note that these scientific articles are becoming a kind of classic, from which writers on the game quote with assurance. In *Golf Illustrated* for January 1, a contributor, by means of a searching analysis of Prof. Tait's writings, shows how mythical must be the story, so familiar on all golf links, that the redoubtable F. G. Tait in 1893 disproved his father's supposed dictum by driving a golf ball further than had been declared from mathematical calculation to be possible. So early as 1891 (see vol. xliv. of Nature) Prof. Tait had begun to see the explanation of the prolonged flight of a golf ball, and he was the last man to dogmatise on a scientific problem which still demanded a complete solution. It is said that he never denied the mythical tale; but was the question ever distinctly put to him? Moreover, it should be remembered that Prof. Tait enjoyed a good story to the full. No doubt the genial banter between father and son when the historic drive was made goes far to explain the germ of the myth.

The British Museum was opened on January 15, 1759, and therefore completed a century and a half of existence on Friday last. An interesting article in the *Times* of January 14 describes the origin and work of this great national institution. It is of particular interest to recall that Sir Hans Sloane, who was Newton's successor as president of the Royal Society, was chiefly responsible for the foundation of the museum, and that the main lines of its present constitution are laid down in his will. He made vast collections of specimens relating to natural history and antiquities; and the Act of Parliament of 1753, to which the museum owes its formation, states that one of the objects is "the purchase of the museum or collection of Sir Hans Sloane." The first directing officer of the museum, styled the principal librarian, was a man of science—Dr. Godwin Knight—known for his improvements of the mariner's compass. Until 1865 the chief accessions were specimens relating to classical antiquities, but upon the death of Mr. Henry Christy in that year, the museum accepted his ethnographical and prehistoric collections. In 1880 the natural history collections were removed to the new building provided for them at South Kensington, and it is becoming evident that further separation of the museum and the library must be contemplated. Upon this point the Times remarks:—"In the future the inevitable and constant growth of the library will call for additional space, and the ultimate separation of the national museum and the national library will undoubtedly come. Such a division is unquestionably more natural than the present state of things, which we accept because it has been of slow and unnoticed growth. The separation of the natural history collections may be described as beneficial to both sides of the museum, and may well serve as a precedent for the Government in the future, whenever the question may arise."

President Roosevelt has signed, says *Science*, a proclamation setting aside and naming the Ocala National Forest in Marion County, in eastern Florida, the first created east of the Mississippi River, and another proclamation creating the Dakota National Forest in Billings County, North Dakota. The two proclamations add two more States to the list of those wherein land will be put under scientific forest administration. There are now nineteen States, and Alaska, having national forests. Before the creation of the Ocala, in Florida, the two forests in Arkansas, the Ozark and the Arkansas, were the easternmost national forests. Practically all the other national forests are in the Rocky Mountain and the Pacific coast States. The Florida forest has an area of 201,480 acres, of which about one-fourth has been taken up under various land laws. It covers a plateau between the St. John's and Ochlawaha rivers, and at no point is an elevation exceeding 150 feet above sea-level obtained. The new Dakota national forest consists of 14,080 acres in the Bad Lands region. Its creation is important, for it means that an experimental field for forest planting has been secured in North Dakota, the least forested State in the Union, having only 1 per cent. of tree growth. The Forest Service expects to establish forest nurseries with the hope that in time to come the area may be re-forested by artificial means.

The annual general meeting of the Institute of Metals was held on January 19, when a paper on the relation between science and practice, and its bearing on the utility of the Institute of Metals, was read by Sir Gerard Muntz, Bart. In this paper attention was directed to the fact that among members of the institute are to be found manufacturers, men of science, and engineers. In some cases the three grades are enrolled in one individual, but generally it will be from the harmonious correlation of the three grades that the benefits of the institute will accrue. After summarising the demands made upon the time and ability of the manufacturer, and pointing out that often cause and effect are noticed and taken advantage of in practice, but the reason why never discovered, and so it happens that the road thus shown is not explored, Sir Gerard Muntz dealt with the work of the man of science. Given, he said, results, cause and effect the man of science, if he persistently devotes himself to the task which is offered him, will probably eventually arrive at the why and wherefore of the matter. The man of science, he continued, has the necessary time; his vocation, as a rule, is embowered "in that cloistered seclusion which allows of consecutive thought and reasoning out of obscure and difficult subjects." No doubt a worthy tribute to the man of science on Sir Gerard Muntz's part, but it would have been more convincing had he made it clearer how the man of science he had in mind gains his livelihood. Referring to laboratory work, Sir Gerard Muntz said that without it nothing can be done; but, he went on, it is not sufficient for the man of science to demonstrate in the laboratory. Science must be reduced to practical form for everyday use before it can be made serviceable in manufacture. The practical worker has to depend on the man of science, and needs guidance in not too elaborate a form.

Systematic ornithologists will welcome a list of new generic names proposed for birds during the years 1901 to 1905 inclusive, together with records of a number of older names not to be found in the "Index Generum Avium." The list has been compiled by Mr. C. W. Richmond, of the U.S. National Museum, and is published as No. 1656 of the Proceedings of that institution. The additions to the "Index Generum" are about 350 in number, but a certain proportion of these rank as *nomina nuda*.

A paper by Dr. E. D. Van Oort on the birds of the Netherlands, published in vol. xxx., Nos. 2 and 3, of Notes from the Leyden Museum, is illustrated by an exquisite photographic plate of two male barn-owls killed in Holland remarkable for their pure white breasts, totally devoid of black spots. In one the feathers of the disk are likewise nearly pure white, while in the other those on the lower border of the same are tipped with orange-buff and blackish-brown.

The Journal of the Royal Society of Arts for December 25, 1908, contains the report of a lecture on the birds of India, delivered before the Indian section of the society by Mr. Douglas Dewar. After referring to the fact that India does possess song-birds, and mentioning the fearlessness and numerical abundance of Indian birds and the charm of birds in general, the lecturer proceeded to discuss the scientific study of birds, more especially in connection with natural selection.

In the twenty-second annual report of the Liverpool Marine Biology Committee, Prof. Herdman laments the decease of two original members of the committee (Messrs. R. D. Darbishire and A. Leicester), as well as of other supporters of the Marine Biological Station at Port Erin. He further deplores the lack of earnest and well-to-do amateur naturalists, who formed the main support of that institution twenty years ago, and pleads the urgency of additional financial assistance if the work and publications (which yearly become more expensive) are to be carried on as heretofore. In response to a desire expressed by certain foreign visitors, Prof. Herdman has included in the report a detailed description, with plans, of the hatchery and hatching-boxes. The work of the institution has been carried on successfully during the year, although the problem of hatching and rearing lobsters has not been solved.

No. 2 of the fourth volume of the Journal of the South African Ornithologists' Union contains the report of the committee for bird-migration for the years 1906 and 1907. Although a very large number of post-cards was circulated, the replies received were disappointingly small, not one out of 100 schoolmasters to whom cards were sent answering the appeal. Six species were entered in the schedule, namely, the swallow, bee-eater, lesser kestrel, greenshank, stork, and white-winged pratincole, and reports on the arrival and departure of these and other species were received from fifteen stations, ranging from Cape Colony to the Orange River Colony and Transvaal. The dates of the arrival of the swallow range from August 28 (Amersfoort, Rolfontein, 1906) to December 6 (Bethulie, 1907); the stork first appeared during 1907 on September 20, but the bulk of these birds seem to have come between November 9 and 24, while greenshanks were seen at three stations in the first half of October. The committee has sent out another series of circulars and cards, to which it may be hoped a larger proportion of replies will be received.

Another issue (No. 1652) of the Proceedings of the U.S. National Museum is devoted to copepod crustaceans parasitic on fishes from the Pacific coast of North America, with descriptions of several new genera and many new species. The author, Mr. C. B. Wilson, had the opportunity of working at a very extensive collection, which yielded very interesting results. Although the number of new species may appear relatively large, it is stated that a great difference between the Atlantic and Pacific representatives of these parasites is only what was to be expected, and but little was previously known of the latter. "The novelty of the characters of these new forms is of much less importance than the close relationship which they show between species inhabiting widely remote localities. . . . There are close correspondences between the Atlantic and Pacific copepods similar to those found in other groups of animals, particularly, perhaps, in the fishes which serve as hosts for these parasites."

The first part of vol. iv. (zoology) of the report on the scientific results of the voyage of the *Scotia* during the years 1902–4, under the leadership of Dr. W. S. Bruce, has been received from the Scottish Oceanographical Laboratory, Edinburgh. From the start of the Scottish National Antarctic Expedition to its finish a daily record was kept of the observations of the naturalists both on board the ship and at the summer station. A field note-book, or naturalists' diary, of the expedition was thus secured, and this record is reproduced with no material alterations in the work just published. The interest and value of this zoological log is increased by many very striking pictures of oceanic and Antarctic life and scenes, the thirty-three plates including no fewer than a hundred illustrations from photographs. We propose to defer further notice of the work until other parts of the fourth volume of the report of the expedition have reached us.

THE editorial of the *Indian Forester* (December, 1908) is devoted to a well-merited eulogy of the services rendered to the Government of India by Mr. S. Eardley-Wilmot, the late Inspector-General of Forests. During the six years that he has occupied that post steps have been taken towards the better training and higher qualification of the staff, improved conditions of service, and the inauguration of the research institute at Dehra Dun; further, public opinion has been moved to recognise the value of the forests and to appreciate the work of the forest officers.

IN the Journal of the Quekett Microscopical Club (November, 1908) there is published an account of an investigation, by Mr. A. E. Hilton, into the streaming movements of plasmodia of the Mycetozoa. It is noted that the movements consist of rhythmic alternating currents that reverse on an average about every ninety seconds, and it was found possible to superimpose on the normal currents special movements induced by tapping lightly on a cover-glass placed on the specimen. Thus it is argued that pressure and suction or pulsations in the plasmodium are the cause of the currents, and it is suggested that such pulsations are probably indications of respiration proceeding in the organism.

THE subject of plant fasciations is treated by Miss A. A. Knox in Publication No. 98 of the Carnegie Institution of Washington. Fasciation is applied to stems that deviate from the normal circular shape, becoming more or less flattened, and that often show repeated branching. The plants investigated were *Œnothera biennis*, *Œnothera cruciata*, and other species of the genus. They produce rosettes of closely compacted leaves in the first year, and throw up flowering shoots later. They may either fasciate as rosettes, producing lopsidedness of stem and leaves, or subsequently, when the elongated stems become flattened or branch. Four different methods of forming fasciations are illustrated, but in each case development proceeds from a special meristem. In all cases fasciation is attributed to injuries inflicted by insects, and the author differs from de Vries in considering that the tendency to fasciation is not a heritable factor.

THE third and seventh volumes of the publication *Recueil de l'Institut Botanique Léo Errera*, Brussels—to give the title as modified on the last volume—have recently been issued. This publication originated in connection with the purpose of bringing together the papers emanating from Prof. Errera's laboratory. The third volume, containing contributions by several workers that were published in various journals during the years 1885 to 1900, indicates the wide scope of the research prosecuted there. Several papers by Dr. E. Laurent, notably the account of a study of the organisms giving rise to leguminous nodules, deal with the action of soil and fermentation bacteria. Cultures of the Mucedineæ are described by Mr. A. de Wèvre, the effect of external factors on karyokinesis is discussed by Dr. E. de Wildeman, and the morphological articles by Dr. J. Massart include a valuable thesis on recapitulation and innovation in plant embryology.

To the *Reliquary* for January Mr. J. L. Cowan contributes an interesting paper on aboriginal American industries. The chief and earliest of these is basketry, which was found in an advanced stage when Friar Marcos de Niza visited the south-western States in 1539. The designs are not accidental, nor do they represent the artistic conception of the worker. Each has its traditional significance—the cobweb pattern being connected with offerings to the spider deity, the deer-hunt with gods of the chase, and so on. Even a break in the design marks a place where evil spirits can find exit, instead of being confined to injure the owner. In the same way each colour has its own significance, red being the most sacred, as typifying the life of man. The transition from basketry to pottery, the basket being covered with clay to save it from injury by fire, can here be clearly traced. Pottery still maintains its ancient perfection only among the Hopi and Zuni communities, the former being specially noted for grace of design, artistic decoration, and faultless workmanship. The latest industry is that of blanket weaving. The arts of plaiting and weaving were known to the natives before the arrival of the European, but it is only since the introduction of sheep and goats that the craft of blanket weaving has been developed, with the result that the Navajos now admittedly make the finest specimens in the world.

MISS E. H. HALL has shown some courage in selecting as the subject for a doctorate dissertation at Bryn Mawr College "The Decorative Art of Crete in the Bronze Age," while Dr. A. J. Evans is still engaged at Knossos, and other promising sites in the island still remain unexcavated. This art series, extending over some two thousand years, begins with simple linear geometric ornament, notably with the zigzag motive. This develops into curvilinear designs, among which are motives resembling natural objects which gratify the primitive instinct for imitative art. Later on these exhibit increasing realism; but the non-imitative ornament is even more typical. By the Middle Minoan III. period this is superseded by pure naturalistic design, due to a local school trained under Egyptian influence. In the great palace-building age at Knossos and Phaistos conventional flower designs replace, in part, naturalistic motives. Lastly, we reach the stage of debased forms of naturalistic motives unintelligently copied, indicating not only lack of artistic originality, but the approach of a purely geometric style. Miss Hall's classification and analysis of the evolution of this school of art will probably not meet with general acceptance in all its interpretations, and her conclusions are always liable to be upset by new discoveries, but as it is accompanied by good sketches of typical examples it will be useful to students of this chapter in art history.

UNDER the title "The Diet of the Hindu," we published in November last (p. 42) a descriptive notice of a memoir by Captain D. McCay, in which he showed, in a systematic manner, and after thorough investigation, that a vegetarian diet has a deleterious effect on the metabolism and efficiency of the inhabitants of Bengal. We have received from Mr. Bernard Houghton, of Sagaing, Burma, a letter in reference to this article in which he points out that the Bengalis live in a damp, hot climate, that dhall bulks largely in their food, and that this diet is rich in purine substances. He is inclined to attribute part, at any rate, of their malnutrition to these circumstances. He states that the Burmese, who are rice-eaters, are in the hospital returns free from the diseases Captain McCay alludes to, and he believes that the same is true of wheat-eating Punjabis. In conclusion, he asks whether there is any evidence that these diseases are prevalent amongst the rice-eating Chinese and Japanese peasantry. In reference to these remarks, our reviewer, before whom we laid Mr. Houghton's letter, replies that he did not deal with the inhabitants of the Punjab and of Burma because he is not aware that similar experimental and statistical evidence is available on the metabolism of these people. If there are any differences in the general metabolism of the two classes of vegetarians referred to, they may be due to variation in climatic influences or to the amount of purine substances in the food, but positive statements cannot be made until comparative data and statistics are produced. In reference to Mr. Houghton's last question, attention may be directed to the prevalence of the disease called beri-beri among the rice-eating nations, and that diet is an important factor was very strikingly seen at the siege of Port Arthur. At that date the Japanese Navy had abandoned their rice diet, whereas the Army had not, otherwise the two services lived under the same conditions; beri-beri still continued to decimate the soldiers, but among the sailors it was practically stamped out.

THE Meteorological Office has sent us the monthly meteorological charts (1) of the North Atlantic and Mediterranean, and (2) of the Indian Ocean and Red Sea, for the present month. In addition to the usual statistical information referring to winds, ocean currents, &c., prepared for the month in question from various publications of the hydrographic and meteorological offices in this country and abroad, all available space, both on the face and back of the charts, is utilised by data of much importance to seamen. A cablegram from Canada, dated December 12, 1908, reported heavy, close-packed ice at Quebec and L'Islet. On the back of the Atlantic chart is reprinted a very interesting memorandum on observations of waves and swell, drawn up by the late Sir G. G. Stokes while he was a member of the Meteorological Council. With reference thereto, the remark is made that "We learn from Sir George Gabriel Stokes that the low swells of deep water, which have long periodic times, cause high rollers when they come into shallow water."

WE have received from Dr. J. R. Ashworth a copy of an analysis of the meteorological elements of Rochdale, from observations since 1878, reprinted from the Transactions of the Literary and Scientific Society of that place for 1908. The author has subjected the monthly means to harmonic analysis, and has computed six component curves for each element. This method discovers several interesting points relating to the climate of Rochdale, *e.g.* the fifth subperiod of the rainfall formula exhibits a remarkably large amplitude; the author points out that "its maximum occurs on December 29 and every succeeding 73 days." A comparison with the rainfall at other stations shows, *e.g.*, that at Stonyhurst an equally large value for the 73-day period is exhibited, while at Oxford and Cambridge this subperiod is insignificant. This method is, generally speaking, too laborious for ordinary observers, but Dr. Ashworth's investigation will be of considerable use to students to whom the advantages of exhibiting results in the most concise form and the best means of calculating the constants may be unknown. Perhaps the greatest living advocate of the method is Prof. J. Hann; students will find much valuable information on the subject and on the meaning of the various parts of the formula in his papers in *Himmel und Erde*, vol. vi., parts viii. and ix., and Quarterly Journal of the Royal Meteorological Society, vol. xxv., pp. 40–65 (translation by Dr. R. H. Scott).

VOL. xl. of the Transactions and Proceedings of the New Zealand Institute, issued in 1908, contains several interesting contributions. Mr. R. Speight (p. 16), in a paper on terrace-development of Canterbury rivers, properly emphasises the importance of considering the varying amount of waste material supplied to the streams in successive epochs. Mr. A. M. Finlayson describes the interesting veins of scheelite and quartz that are now mined in the goldfields of Otago, the price of the dressed ore having risen in fifteen years from 20*l.* to 160*l.* per ton. Dr. P. Marshall shows that the so-called gabbro of Dun Mountain consists of grossularite and a pyroxene or an amphibole, and he makes the interesting suggestion that this rock probably results from the digestion of an adjacent limestone in the peridotite magma which provides the well-known dunite. Botany is represented by nine papers, including Mr. D. Petrie's account of a visit to Mt. Hector, 5106 feet in height, in which the changes in the flora, and even in the characters of individual species, at successive elevations are discussed. Mr. H. Guthrie-Smith, in "The Grasses of Tutira," describes the struggle between alien grasses and the returning indigenous species over farm lands watched by him for twenty-five years. The land has already become "sick" of the alien species, and, as its fertility lessens, the hardier native species tend to resume possession, and thus to redress "the balance of nature." There are twenty zoological papers, mollusca being largely dealt with; Mr. W. H. Webster contributes seven new species, which are figured. Strong pleas are put in for the protection of native birds, presumably with the exception of the kea, which Mr. G. R. Marriner again holds up to obloquy. This volume, including as it does 608 pages and thirty-four plates, is a monument to the activity of the local societies and of the central institute that unites them.

EVERYONE who is working at radio-activity at the present time feels the need of a standard of activity in terms of which all measurements of activity can be expressed. It was suggested three years ago by Prof. H. N. McCoy, of the University of Chicago, that the activity of one square centimetre of a layer of suitable thickness of uranium oxide, $U_3O_8$, would furnish an excellent standard. In the December (1908) numbers of the *American Journal of Science* and of *Le Radium* Prof. McCoy gives an account of the work he has done, in conjunction with Mr. G. C. Ashman, to show that such a layer has all the properties required in a standard. The oxide is easily prepared, and samples prepared from three different sources gave identical results. A layer of thickness such that 0·02 gram goes to the square centimetre gives the maximum activity due to the $\alpha$ rays. The radiation due to the $\beta$ rays is small.

MESSRS. H. F. ANGUS AND CO., 83 Wigmore Street, Cavendish Square, have just issued a summary of catalogues of apparatus for testing and correcting vision, relative magnification, actual magnification, projection, prismatic work, angular and linear measure, and other scientific observations. Of particular interest is the announcement of a series of demonstrations on the manipulation of the microscope and its accessories, free to all who care to avail themselves of them. These demonstrations should be of real service in showing what can be accomplished by modern instruments and preparations.

THE "Science Year Book and Diary" for 1909 is now available. It is edited, as in former years, by Major B. F. S. Baden-Powell, and maintains the distinguishing characteristics to which attention has been directed in these columns on previous occasions. Among other additions in the present issue may be mentioned a table of the vegetable kingdom specially compiled by Dr. Rendle, of the British Museum. The frontispiece consists of an excellent portrait of Sir William Ramsay, K.C.B., F.R.S. The book is published by Messrs. King, Sell and Olding, Ltd., Chancery Lane, London, and its price is 5*s.* net.

MESSRS. MACMILLAN AND CO., LTD., have published a new edition of Mr. T. A. O'Donahue's "Colliery Surveying." The book was reviewed on its first publication in NATURE of March 11, 1897 (vol. lv., p. 438). It is only necessary to add that extensive revisions and additions have been made in the present issue.